AMENDMENTS TO THE CLAIMS

Claims 6-8, 12-19, 25-31, 38-42, 44, 166, 168 and 169 previously were withdrawn from consideration as being drawn to a nonelected species.

Claims 1, 46, 48, 101, 215, 217, 223, 225, 232, 234, 240, 243, 244, 246 and 247 are amended without prejudice to representation in a continuing application.

1. (Currently Amended) A method ~~of forming a chemically selective sorbent film,~~ comprising:

forming an analytical device by:

placing on a substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst; and

exposing at least a portion of said composition to light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition to provide a chemically selective sorbent film on the substrate.

~~wherein the substrate and the film together are operable as an analytical device.~~

2. (Previously Presented) The method of claim 1 where the catalyst is selected from the group consisting of platinum(II) bis (beta-diketonates).

3. (Canceled)

4. (Previously Presented) The method of claim 1 wherein the second precursor molecule is selected from the group consisting of monomers, oligomers, polymers, and crosslinkers.

5. (Canceled)

6. (Withdrawn) The method of claim 4 where the second precursor molecule is a polymer with vinyl groups pendant to the polymer chain.

7. (Withdrawn) The method of claim 6 where the polymer is a polysiloxane with vinyl groups pendant to the polymer chain.

8. (Withdrawn) The method of claim 7 where the polymer is a polysiloxane selected from the group OV225, OV17, OV275, and polydimethylsiloxane with vinyl substituents.

9. (Previously Presented) The method of claim 4 where the second precursor molecule is a polymer with a carbon-carbon multiple bond on each terminus.

10. (Previously Presented) The method of claim 9 where the polymer is a polysiloxane with vinyl groups on each terminus.

11. (Previously Presented) The method of claim 9 where the polymer is polydimethylsiloxane with vinyl groups on each terminus.

12. (Withdrawn) The method of claim 1 where the second precursor molecule is a poly(carbosiloxane) with a carbon-carbon multiple bond on each terminus.

13. (Withdrawn) The method of claim 12 where the carbosiloxane polymer is selected from the group BSP3, UR3, CSPH, and CSME, where each was prepared to have carbon-carbon multiple bonds on each terminus.

14. (Withdrawn) The method of claim 4 where the second precursor molecule is a monomer.

15. (Withdrawn) The method of claim 14 where the second precursor molecule is selected from the group containing molecules with two vinylsiloxy groups, molecules with two vinylsilane groups, molecules with two vinyldimethylsiloxy groups, and molecules with two vinylmethylphenylsiloxy groups.

16. (Withdrawn) The method of claim 14 where the second precursor molecule is an organic molecule with two allyl groups.

17. (Withdrawn) The method of claim 16 where the second precursor molecule is 2, 2-bis (3-allyl-4-hydroxyphenyl)hexafluoropropane).

18. (Withdrawn) The method of claim 4 where the second precursor molecule is a crosslinker containing more than two carbon-carbon multiple bonds.

19. (Withdrawn) The method of claim 18 where the crosslinker is selected from the group containing molecules with more than two vinylsiloxy groups, molecules with more than two vinylsilane groups, molecules with more than two vinyldimethylsiloxy groups, and molecules with more than two vinylmethylphenylsiloxy groups.

20. (Previously Presented) The method of claim 1 wherein the first precursor molecule is selected from the group consisting of monomers, oligomers, polymers, and crosslinkers.

21. (Previously Presented) The method of claim 20 where the first precursor molecule is a polymer.

22. (Previously Presented) The method of claim 21 where the first precursor molecule is a polymer with silicon hydride groups along the polymer chain.

23. (Previously Presented) The method of claim 22 where the polymer is a polysiloxane with silicon hydride groups along the polymer chain.

24. (Previously Presented) The method of claim 23 where the polymer is a polysiloxane selected from the group if poly(hydromethyl)(dimethyl)siloxane copolymers and poly(hydromethyl)siloxane.

25. (Withdrawn) The method of claim 21 where the first precursor molecule is a polymer with a silicon hydride group on each terminus.

26. (Withdrawn) The method of claim 25 where the polymer is a polysiloxane with a silicon hydride group on each terminus.

27. (Withdrawn) The method of claim 26 where the polymer is polydimethylsiloxane with a silicon hydride group on each terminus.

28. (Withdrawn) The method of claim 21 where the polymer is a poly(carbosiloxane) with a silicon hydride group on each terminus.

29. (Withdrawn) The method of claim 28 where the polymer is selected from the group BSP3, UR3, CSPH, and CSME, where each was prepared to have a silicon hydride group on each terminus.

30. (Withdrawn) The method of claim 20 where the first precursor molecule is an oligomer.

31. (Withdrawn) The method of claim 30 where the first precursor molecule is an oligomer with a silicon hydride group on each terminus.

32-37. (Canceled)

38. (Withdrawn) The method of claim 20 where the first precursor molecule is a monomer with two Si-H bonds.

39. (Withdrawn) The method of claim 38 where the monomer is diphenylsilane.

40. (Withdrawn) The method of claim 20 where the first precursor molecule is a crosslinker with more than two Si-H bonds.

41. (Withdrawn) The method of claim 40 where the first precursor molecule is selected from the group 1,3-diphenyl-1,1,3,3-tetrakis(dimethylsiloxy)disiloxane, phenyl-tris(dimethylsiloxy)silane, and methyl-tris(dimethylsiloxy)silane.

42. (Withdrawn) The method of claim 1 where the hydrosilylation reactions cause polymerization to occur.

43. (Previously Presented) The method of claim 1 where the hydrosilylation reactions cause crosslinking to occur.

44. (Withdrawn) The method of claim 1 where the hydrosilylation reactions cause polymerization and crosslinking to occur.

45. (Previously Presented) The method of claim 1 where the composition contains effective amounts of hydromethyldimethylsiloxane (25% hydromethyl groups), vinyl-terminated polydimethylsiloxane, and Pt(II) bis(acetylacetonate).

46. (Currently Amended) ~~A sorbent film that will selectively absorb chemical species when exposed to such chemical species, prepared by the~~ <u>The</u> method of claim 1 <u>wherein the analytical device generates a signal in response to the presence of an analyte</u>.

47. (Canceled)

48. (Currently Amended) A method ~~of forming a chemically selective sorbent film,~~ comprising:

<u>forming an analytical device by:</u>

providing a substrate;

cleaning the substrate;

reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions;

placing on a substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst; and

exposing at least a portion of said composition to light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition to provide a chemically selective sorbent film on the substrate.

~~wherein the substrate and the film together are operable as an analytical device.~~

49. (Previously Presented) The method of claim 48 wherein the coupling agent is selected from the group that appends silicon hydride or carbon-carbon multiple bonds to the surface.

50. (Previously Presented) The method of claim 49 wherein the coupling agent is selected from the group trialkoxysilane, trimethoxysilane, triethoxysilane, trichlorosilane, trialkoxyvinylsilane, trimethoxyvinylsilane, triethoxyvinylsilane, and trichlorovinylsilane, alkoxydimethylsilanes, chlorodimethylsilanes, alkoxydimethylvinylsilanes, and chlorodimethylvinylsilanes.

51.-100. (Canceled)

101. (Currently Amended) ~~A sorbent film that will selectively absorb chemical species when exposed to such chemical species, prepared by the~~ The method of claim 48 wherein the analytical device generates a signal in response to the presence of an analyte.

102. (Canceled)

103. (Previously Presented) A method of forming a chemically selective sorbent film, comprising:

placing on a substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions;

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film; and

using the chemically selective sorbent film by exposing the film to a first chemical species that the film will selectively absorb.

104. (Previously Presented) The method of claim 103 where the catalyst is selected from the group consisting of platinum(II) bis(beta-diketonates).

105. (Canceled)

106. (Previously Presented) The method of claim 103 wherein the second precursor molecule is selected from the group consisting of monomers, oligomers, polymers, and crosslinkers.

107-146. (Canceled)

147. (Previously Presented) A sorbent film that will selectively absorb chemical species when exposed to such chemical species, prepared by the method of claim 103.

148. (Previously Presented) A chemical sensor prepared by the method of claim 103.

149. (Previously Presented) A method of forming a chemically selective sorbent film, comprising:

providing a substrate;

cleaning the substrate;

reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions;

placing on said substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the unexposed regions;

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film; and

using the chemically selective sorbent film by exposing the film to a first chemical species that the film will selectively absorb.

150. (Previously Presented) The method of claim 149 wherein the coupling agent is selected from the group that appends silicon hydride or carbon-carbon multiple bonds to the surface.

151. (Previously Presented) The method of claim 150 wherein the coupling agent is selected from the group trialkoxysilane, trimethoxysilane, triethoxysilane, trichlorosilane,

trialkoxyvinylsilane, trimethoxyvinylsilane, triethoxyvinylsilane, and trichlorovinylsilane, alkoxydimethylsilanes, and alkoxydimethylvinylsilanes.

152. (Canceled)

153. (Previously Presented) The method of claim 149 where the catalyst is platinum (II) bis(acetylacetonate).

154. (Previously Presented) The method of claim 149 wherein the second precursor molecule is selected from the group consisting of monomers, oligomers, polymers, and crosslinkers.

155-165. (Canceled)

166. (Withdrawn) The method of claim 164 where the second precursor molecule is an organic molecule with two allyl groups.

167. (Canceled)

168. (Withdrawn) The method of claim 154 where the second precursor molecule is a crosslinker containing more than two carbon-carbon multiple bonds.

169. (Withdrawn) The method of claim 168 where the crosslinker is selected from the group containing molecules with more than two vinylsiloxy groups, molecules with more than two vinylsilane groups, molecules with more than two vinyldimethylsiloxy groups, and molecules with more than two vinylmethylphenylsiloxy groups.

170-201. (Canceled)

202. (Previously Presented) A sorbent film that will selectively absorb chemical species when exposed to such chemical species, prepared by the method of claim 149.

203. (Previously Presented) A chemical sensor prepared by the method of claim 149.

204. (Previously Presented) A method of forming several individual domains of chemically selective sorbent films on a single substrate comprising:

providing a substrate;

cleaning the substrate;

reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions;

placing on a substrate a first composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions; and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate;

placing on the substrate a second composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the second composition at a different location on the substrate from the first composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions;

and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate;

repeating the process with additional new compositions at additional different locations;

whereby the substrate contains separate domains of different chemically selective sorbent films.

205. (Previously Presented) The method of claim 1 wherein the chemically selective sorbent film has a glass-to-rubber transition temperature below the operating temperature of the chemically selective sorbent film.

206-207. (Canceled)

208. (Previously Presented) The method of claim 103, further comprising:

placing on the substrate a second composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing at least a portion of said second composition to light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the second composition to provide a second chemically selective sorbent film;

leaving an unexposed region of the second composition;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions of the second composition; and

removing the unexposed region of the second composition from the substrate, leaving the exposed region of the second composition on the substrate, by contacting the composition with a solvent effective to dissolve the unexposed composition.

209. (Previously Presented) The method of claim 208 wherein the first chemically selective sorbent film has a different pattern or is at a different location than the second chemically selective sorbent film.

210. (Previously Presented) The method of 208 wherein the first chemically selective sorbent film has a different functionality than the second chemically selective sorbent film.

211. (Previously Presented) The method of claim 208, further comprising repeating said placing, exposing, leaving, allowing and removing one or more additional times with one or more additional compositions.

212. (Previously Presented) The method of claim 1, further comprising, before said placing:

modifying the surface to include a plurality of reactive groups effective to participate in the hydrosilylation reaction, wherein the reactive groups participate in the reaction by reacting with a member selected from the group consisting of the first precursor molecule, the second precursor molecule, and each of the first and second precursor molecules.

213. (Previously Presented) The method of claim 212 wherein said modifying comprises reacting a coupling agent with the surface of said substrate, said coupling agent including a reactive group selected from the group consisting of a silicon hydride group, a carbon-carbon multiple bond, and each of a silicon hydride group and a carbon-carbon multiple bond.

214. (Canceled)

215. (Currently Amended) A method ~~for making a chemical sensor,~~ comprising:

making a chemical sensor by:

providing a clean substrate;

reacting a coupling agent with the surface of said substrate, said coupling agent including a reactive group selected from the group consisting of a silicon hydride group, a carbon-carbon multiple bond, and each of a silicon hydride group and a carbon-carbon multiple bond;

placing on the substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in regions of the composition exposed to the light;

allowing sufficient time for hydrosilylation reactions to occur within the exposed regions; and

removing the unexposed composition from the substrate, leaving the exposed composition on the substrate, by contacting the composition with a solvent effective to dissolve the unexposed composition, to thereby provide a chemically selective sorbent film~~ useful as a chemical sensor~~.

216. (Previously Presented) The method of claim 215 wherein the chemically selective sorbent film has a glass-to-rubber transition temperature below the operating temperature of the chemical sensor.

217. (Currently Amended) The method of claim 215, further comprising repeating said placing, exposing, allowing and removing with a second composition to provide a second chemically selective sorbent film <u>on the substrate</u>.

218. (Previously Presented) The method of claim 217 wherein the first chemically selective sorbent film has a different pattern or is at a different location than the second chemically selective sorbent film.

219. (Previously Presented) The method of 217 wherein the first chemically selective sorbent film has a different functionality than the second chemically selective sorbent film.

220. (Previously Presented) The method of claim 217, further comprising repeating said placing, exposing, allowing and removing one or more additional times with one or more additional compositions.

221. (Previously Presented) A method of forming several individual domains of chemically selective sorbent films on a single substrate comprising:

providing a substrate;

placing on a substrate a first composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions; and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate;

placing on the substrate a second composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the second composition at a different location on the substrate from the first composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions; and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate;

whereby the substrate contains separate domains of different chemically selective sorbent films.

222. (Previously Presented) The method of claim 1 wherein the analytical device is a microanalytical device.

223. (Currently Amended) The method of claim 1 wherein the analytical device is selected from the group consisting of a chemical sensor, a separation membrane ~~device~~, a solid phase extraction device and a chromatograph.

224. (Previously Presented) The method of claim 48 wherein the analytical device is a microanalytical device.

225. (Currently Amended) The method of claim 48 wherein the analytical device is selected from the group consisting of a chemical sensor, a separation membrane ~~device~~, a solid phase extraction device and a chromatograph.

226. (Previously Presented) The method of claim 1, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

227. (Previously Presented) The method of claim 1, wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

228. (Previously Presented) The method of claim 48, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

229. (Previously Presented) The method of claim 48, wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

230. (Previously Presented) The method of claim 103, wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

231. (Previously Presented) The method of claim 149, wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

232. (Currently Amended) A method of forming a chemically selective sorbent film, comprising:

determining that at least one of a first and second precursor molecule has a chemically interactive property that is retained after a chemically selective sorbent film is formed by a hydrosilylation reaction between said first and second precursor molecules and that provides to the film a functionality whereby the film selectively absorbs a first chemical species more than a second chemical species, wherein the first precursor molecule contains at least two silicon hydride groups and the second precursor molecule contains at least two carbon-carbon multiple bonds;

~~selecting a first precursor molecule containing at least two silicon hydride groups and a second precursor molecule containing at least two carbon-carbon multiple bonds based upon a determination that at least one of said first and second precursor molecules has a chemically interactive property that is retained after a chemically selective sorbent film is formed by a hydrosilylation reaction between said first and second precursor molecules and that provides to the film a functionality whereby the film selectively absorbs a first chemical species more than a second chemical species~~;

placing on a substrate a composition that includes the first precursor molecule, the second precursor molecule and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film.

233. (Previously Presented) The method of claim 232, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

234. (Currently Amended) A method of forming a chemically selective sorbent film, comprising:

determining that at least one of a first and second precursor molecule has a chemically interactive property that is retained after a chemically selective sorbent film is formed by a hydrosilylation reaction between said first and second precursor molecules and that provides to the film a functionality whereby the film selectively absorbs a first chemical species more than a second chemical species, wherein the first precursor molecule contains at least two silicon hydride groups and the second precursor molecule contains at least two carbon-carbon multiple bonds;

~~selecting a first precursor molecule containing at least two silicon hydride groups and a second precursor molecule containing at least two carbon-carbon multiple bonds based upon a determination that at least one of said first and second precursor molecules has a chemically interactive property that is retained after a chemically selective sorbent film is formed by a hydrosilylation reaction between said first and second precursor molecules and that provides to~~

~~the film a functionality whereby the film selectively absorbs a first chemical species more than a second chemical species~~;

providing a substrate;

cleaning the substrate;

reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions;

placing on said substrate a composition that includes the first precursor molecule, the second precursor molecule and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film.

235. (Previously Presented) The method of claim 234, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

236. (Previously Presented) A method of performing an analytical function, comprising:

providing an analytical device made by placing on a substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor

molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst; exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition; leaving an unexposed region; allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film; and

using the device by exposing the film to a first chemical species that the film will selectively absorb.

237. (Previously Presented) The method of claim 236 wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

238. (Previously Presented) A method of performing an analytical function, comprising:

providing an analytical device made by providing a substrate; cleaning the substrate; reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions; placing on said substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst; exposing the composition to a predetermined pattern of light of a type and in an amount

sufficient to cause hydrosilylation reactions to occur in the composition; leaving an unexposed region; allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film; and

using the device by exposing the film to a first chemical species that the film will selectively absorb.

239. (Previously Presented) The method of claim 238 wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs the first chemical species more than a second chemical species.

240. (Currently Amended) A method ~~for making an analytical device,~~ comprising:

~~selecting a design for an analytical device that is selective for one or more chemical species by the inclusion of chemical structural units that provide particular interactive properties; and~~

manufacturing an analytical device that is selective for one or more chemical species by: ~~according to the design by~~

placing on a substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region; allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film.

241. (Previously Presented) The method of claim 240, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

242. (Presently Amended) The method of claim 240 wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs ~~the~~ a first chemical species more than a second chemical species.

243. (Currently Amended) The method of claim 240 wherein ~~said selecting comprises designing an~~ the analytical device ~~to have~~ has a predetermined functionality.

244. (Currently Amended) A method ~~for making an analytical device,~~ comprising:

~~selecting a design for an analytical device that is selective for one or more chemical species by the inclusion of chemical structural units that provide particular interactive properties; and~~

manufacturing an analytical device that is selective for one or more chemical species by: ~~according to the design by~~

providing a substrate;

cleaning the substrate;

reacting a coupling agent with the surface of said substrate that appends to the surface reactive groups that can participate in hydrosilylation reactions;

placing on said substrate a composition containing a first precursor molecule containing at least two silicon hydride groups, a second precursor molecule containing at least two carbon-carbon multiple bonds, and a photoactivatable catalyst;

exposing the composition to a predetermined pattern of light of a type and in an amount sufficient to cause hydrosilylation reactions to occur in the composition;

leaving an unexposed region;

allowing sufficient time for hydrosilylation reactions to occur within exposed regions, thereby decreasing the solubility of the exposed regions such that the unexposed region is more soluble in a solvent than the exposed regions; and

using a solvent to remove the unexposed composition from the substrate, leaving the exposed composition on the substrate to provide a chemically selective sorbent film.

245. (Previously Presented) The method of claim 244, further comprising leaving the chemically selective sorbent film in place on the substrate for subsequent use to selectively absorb a first chemical species to which the film is exposed.

246. (Currently Amended) The method of claim 244 wherein at least one of the first and second precursor molecules is selected based upon its having a chemically interactive property that is retained after the hydrosilylation reactions, and that provides to the chemically selective sorbent film a functionality whereby the film selectively absorbs ~~the~~ a first chemical species more than a second chemical species.

247. (Currently Amended) The method of claim 244 wherein ~~said selecting comprises designing an~~ the analytical device ~~to have~~ has a predetermined functionality.